Virtual training

Airlines often perceive staff training as a necessary evil rather than a tool to enhance efficiency. **BILL READ** looks at a new web-based training system which not only is less expensive to operate than conventional training methods but can also bring about better results.

Here are a couple of questions to try and answer: Question 1. Battery powered wheelchairs and other electrically powered mobility aids powered by wet cell (spillable) batteries:

A: *May be carried provided the battery is disconnected and stored upright*
B: *Must never be carried on passenger flights*
C: *May only be carried if the battery is removed*
D: *May be carried without restrictions provided they are stored in the hold*

Question 2. What selection must be made on the fuel panel before the APU is started?
A: *Set R STBY PUMP switch to ON*
B: *Set L INNER fuel pump switch to ON*
C: *Set all fuel pump switches to ON*
D: *Set R INNER fuel pump switch to ON*

The answers can be found at the end of this article. These are not, as you might think, extra questions left over from December's Christmas Quiz but genuine exam questions from the BAe 146 Recurrent Training: APU — Normal Operation and Dangerous Goods Awareness Flight Deck modules from IDC Training Solutions, a company that produces on-line versions of airline training courses

Airlines have a regulatory requirement from their relevant aviation authority (in the UK, the Civil Aviation Authority (CAA) and the Joint Aviation Authority (JAA)) to provide and monitor appropriate training for their personnel on an annual basis. Training is a mix of hands-on, either in the cockpit, simulator or crew trainer, and theoretical. Individuals are held responsible for ensuring that they meet current requirements. In a small airline, monitoring training needs and achievements can present a major task.

Traditionally, carriers have sent trainees doing theoretical training to a central training centre where they learn through 'chalk and talk' delivery from experienced instructors. Such methods have the advantage that trainees can benefit from interaction with more experienced personnel but also the disadvantage that everyone has to learn at the same pace.
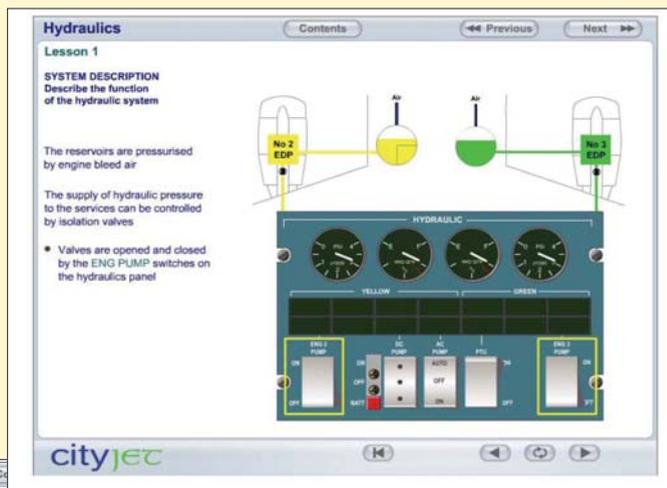
Another problem, particularly for smaller airlines, is that centralised training costs money, in travel and subsistence, and also in time because staff are not working at their regular jobs.

Distance learning

To address these problems, Cheltenham-based Intelligent Data Capture (IDC) Training Solutions has produced a series of web-based learning packages for theoretical training that, it claims, can improve understanding, increase efficiency and reduce costs. By logging into an Internet PC anywhere they happen to be, pilot and crew members can work through lessons at a time and pace suited to their own time and convenience. The training modules take the student through a learning programme, testing knowledge and understanding along the way. These can include 3D working diagrams which can be manipulated by the individual. Each lesson ends with a test of multiple choice questions (such as those quoted at the beginning of this article). The packages produced so far cover aircraft technical recurrent training, low visibility operations and dangerous goods — the first two being aimed at pilots and the third at pilots and cabin crew. Other modules, covering first aid and security, are

Two sample pages from IDC's BAe 146 recurrent training course for CityJet featuring modules on hydraulics (above) and auxiliary power units (left).

currently under development.

"In a highly competitive market in which airlines are struggling to minimise costs, operators are apt to see training as a necessary evil rather than something that contributes to efficiency," states Peter Moore of IDC. "Perhaps, even more worryingly, they give the minimum acknowledgement to the enhanced safety of operations that stem from better training. Provided they comply with the UK, European or US rules, everything else is unwarranted cost. Of course, accidents and incidents tell a slightly different story. While they rarely have an absolute single cause, there are many cases where the investigating authority determines that better training might have reduced or even eliminated the risk factors."

In a typical regional airline, flight crews attend one day technical refresher training per year while cabin crew attend one day for each aircraft type in which they fly, usually up to three. Both flight and cabin crew also attend type conversion courses throughout their careers. "E-learning can replace all or part of a residential course or be complementary to it," explains Moore. "For airlines, the introduction of web and computer-based training can improve the quality and consistency of training and reduce the number of training days required, thereby releasing crews to fly. Moving from traditional methods to modern technology also reduces or even eliminates the time that crews need to travel to training sessions."

Low cost learning management

The e-learning packages provided by IDC include a low cost learning management system (LMS). Named Tracker, the LMS is a web-based facility which monitors and records training and allows airline training administrators to administer and track training sessions. Total study time and test results are recorded by the LMS and logged by the training manager. Crews undergoing training have limited access to the LMS, enabling them to view assigned training, review results and edit personal details. Training managers have full access to the system to perform a range of administrative functions and upload new material when required. Lessons can be set-up, individual performance monitored, remedial training assigned and completion certificates printed.

To use LMS, airlines have to provide a qualified training manager. The system allows the training administrator to:

- Add new crew members and delete those who have left the company.
- Check and record performance.
- Monitor qualification expiry dates and send e-mail reminders where necessary.
- Ensure that crew who have failed a test are given remedial training and re-examined at a later date.

The virtual advantage

"Computer-based training packages supported by LMS allow crews to complete training on their own PCs or on PCs provided for this purpose at a company facility," declares Peter Moore. "Real savings are made through the improved availability of crews and reductions in travel and subsistence. In addition, individual posts could be identified for disestablishment with commensurate savings. All the airline has to do is provide Internet access for crews and training staff and monitor their training."

The advantages of using an on-line training system is that is does not have to be completed in a block or at a central location. Trainees can work from remote operating bases or even at home. Training can be scheduled within a crew duty period or on stand-by. Training sessions can be broken into short manageable modules designed to fit the time available. Another advantage is that the training material can be made available all year round. Unlike a classroom course, crew can revisit any topic if they need to.

"Web-based training offers better results, improved efficiency and reduced costs," states Moore. "With a complete e-learning management suite, any training package can be sourced or developed to meet individual requirements.

IDC can provide different types of training from PowerPoint-based lecture sets to full-colour printed manuals. The company has also produced a JAA ATPL integrated learning system (JALS) which can be used by students studying for their ATPL theory examinations. This can be used for individual study or as part of a classroom-based programme. When it is used individually, students can access an on-line forum to participate in a wider learning community.

Virtual training

Willing converts

Tracker has been adopted by two European airlines — CityJet and BA CitiExpress. Both carriers claim to have made impressive cost savings as a result and have noted that aircrew technical knowledge has improved to such an extent that aircraft down time has been reduced as a result of improved understanding of how systems really work. Fewer defects are logged after flights and those that do occur have better explanations. Pilot availability is improved through better utilisation of available hours as a result of moving away from fixed en-bloc training. However, aircraft availability has improved because pilots have gained a better understanding of the technical systems through use of the IDC BAe 146 technical type material. CityJet started adopting e-based training nearly four years ago and currently uses it for dangerous goods, low visibility operations, cold weather operations, enhanced ground proximity warning system (EGPWS) and technical training.

"We find that e-based training gives us huge advantages with regard to the accessibility of the system, thus giving maximum roster flexibility," enthuses Tony Regan, CityJet's general manager flight operations. "In addition, costs are significantly reduced. The training requirements can also be 'flattened out' across the roster period as you do not require the large numbers of trainees that you would in the classroom situation. Another great advantage is that students can progress at their own pace and learn via their preferred style. A disadvantage lies in the loss of the personal element that is available in face to face tutor-led sessions. We recognise this and during initial training the students are led through the sessions with an instructor. The instructor's role is very much secondary and is purely to ensure all students are fully understanding the material."

CityJet BAe 146 landing at London City Airport.

Trainees are able to do their studies at any of CityJet's offices and in some cases from home PCs. Some training modules are issued on disk while others are available on the airline's staff intranet site which is accessible via the web. The training is paid for by CityJet.

On-line inertia

Despite the enthusiasm displayed by those carriers who have moved to on-line training, there is still a reluctance among carriers to abandon traditional methods. "As with any new training system, there are start-up and running costs," comments Peter Moore. "Despite the fact that start-up up costs should be viewed as 'spend to save' and that running costs are lower, we have still found many airlines reluctant to make the break with the 'steam age'. While carriers operate aircraft that are on the leading edge of technology, flight training is often a poor relation. Flight operations managers exercise tight control over what they see as the training budget, although the real cost of training is often hidden and remains unaddressed. Time-off roster travelling to and from training venues, pulling irreplaceable senior captains off the line to deliver routine training courses and providing one-off training to individuals about to go out of currency is a wasteful and inefficient use of scarce resources. As the hiring boom makes it increasingly difficult to source good crew, so it becomes even more important for airlines to maximise the potential from within existing resources.'"

Peter Moore admits that, while e-learning has its advantages for theoretical training, it is not always suitable for every occasion. "In some cases, the regulations specifically insist on contact time, as in the case of crew resource management (CRM) training and in others, for example staff induction training, there is no real substitute for traditional classroom methods," he concludes. "However, in many instances, it can result in real benefits for both airlines and their employees."

"'Steady advances in the capability of computer-based training authoring tools has allowed training companies like IDC to produce sophisticated emulations much more quickly and cheaply than was possible even five years ago. Without having to create complex and prohibitively expensive simulations, training content now routinely shows cockpit events such as gauge needles moving, display symbology changing and captions illuminating in response to switch selections. Advanced 3D modelling packages, until recently beyond the reach of most training companies, are now affordable and readily available so that accurate models of airports and runways can easily be made." ◆

For more information on IDC, see www.topclasstraining.com.